

What is claimed is:

- 5     1. An isolated polynucleotide comprising a nucleotide sequence that is at least 80% identical to SEQ ID NO:1, and wherein a virus encoded by said polynucleotide infects mice.
2. The polynucleotide of claim 1 wherein said sequence is at least 95% identical to SEQ  
10   ID NO:1.
3. The polynucleotide of claim 1, wherein said sequence is identical to SEQ ID NO:1.
4. The polynucleotide of claim 1, wherein said polynucleotide consists of SEQ ID NO:1.  
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5. An isolated polynucleotide comprising a sequence that is completely complementary to the sequence of claim 1.
6. An amino acid sequence encoded by the nucleotide sequence of claim 1.  
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7. A peptide of at least 20 amino acids encoded by the polynucleotide of claim 1.
8. A peptide of at least 20 amino acids encoded by the polynucleotide of claim 2.
- 25   9. An isolated polypeptide comprising an amino acid sequence at least 80% identical to SEQ ID NO:2, and wherein said amino acid sequence is a murine norovirus sequence.
10. The isolated polypeptide of claim 9 wherein the sequence is at least 95% identical to  
SEQ ID NO:2.

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11. The isolated polypeptide of claim 9 wherein the sequence is identical to SEQ ID NO:2.

12. An isolated polypeptide comprising an amino acid sequence at least 80% identical to  
5 SEQ ID NO:3, and wherein said amino acid sequence is a murine norovirus sequence.

13. The isolated polypeptide of claim 12, wherein the sequence is at least 95% identical to SEQ ID NO:3.

10 14. The isolated polypeptide of claim 12 wherein the sequence consists of SEQ ID NO:3.

15. An isolated polypeptide comprising an amino acid sequence at least 80% identical to SEQ ID NO:4, and wherein said amino acid sequence is a murine norovirus sequence.

15 16. The isolated polypeptide of claim 15 wherein the sequence is at least 95% identical to SEQ ID NO:4.

17. The isolated polypeptide of claim 15 wherein the sequence consists of SEQ ID NO:4.

20 18. An isolated nucleotide sequence comprising at least 10 contiguous nucleotides completely complementary to the polynucleotide of claim 1, wherein said nucleotide sequence hybridizes to SEQ ID NO:1 under highly stringent conditions.

19. The isolated nucleotide sequence of claim 18 wherein said at least 10 contiguous  
25 nucleotides are completely complementary to SEQ ID NO:1.

20. An isolated nucleotide sequence comprising at least 10 contiguous nucleotides identical to the polynucleotide of claim 1, wherein said nucleotide sequence hybridizes to the complement of SEQ ID NO:1 under highly stringent conditions.

21. The isolated nucleotide sequence of claim 20 wherein said at least 10 contiguous nucleotides are identical to SEQ ID NO:1.

22. A host cell transfected with the polynucleotide of claim 1, or a portion thereof that  
5 encodes a polypeptide of at least 20 amino acids.

23. A vector comprising the polynucleotide of claim 1, or a portion thereof that encodes a polypeptide of at least 20 amino acids.

10 24. A host cell comprising the vector of claim 23.

25. A method for detecting the presence of murine calicivirus in a sample, comprising  
a) contacting the sample with the isolated nucleotide sequence of claim 18;  
b) providing conditions that allow specific hybridization of the nucleotide  
15 sequence of step a) to the murine calicivirus; and  
c) detecting whether the nucleotide sequence hybridizes to murine calicivirus.

26. The method of claim 25 wherein said detecting step further comprises quantitating the presence of murine calicivirus.  
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27. A method for detecting the presence of murine calicivirus in a sample, comprising  
a) contacting the sample with a nucleotide sequence capable of specifically  
hybridizing to murine calicivirus;  
b) providing conditions that allow specific hybridization of the nucleotide  
25 sequence of step a) to the murine calicivirus; and  
c) detecting whether the nucleotide sequence hybridizes to murine calicivirus.

28. The method of claim 27 wherein said detecting step further comprises quantitating the presence of murine calicivirus.  
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29. An isolated polynucleotide encoding a peptide of a murine calicivirus, said polynucleotide consisting essentially of:
- a) a nucleotide sequence selected from the group consisting of nucleotides 147-5021 of SEQ ID NO:1; nucleotides 5057-6679 of SEQ ID NO:1; and nucleotides 6682-7302 of SEQ ID NO:1;
  - b) a nucleotide sequence that is at least 80% identical to the polynucleotide of a);
  - c) the complement of a) or b).
30. A vector comprising the polynucleotide of claim 29.
31. A host cell transfected with the polynucleotide of claim 30.
32. An antibody capable of selectively binding to a murine calicivirus amino acid sequence, wherein said amino acid sequence is selected from the group consisting of SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, the amino acid sequence of the peptide of claim 7, and the amino acid sequence of the peptide of claim 8.
33. The antibody of claim 32, wherein said antibody is a monoclonal antibody.
34. The antibody of claim 32, wherein said antibody is a polyclonal antibody.
35. A method for identifying an agent capable of modulating or preventing murine calicivirus (MNV-1) infection, said method comprising
- a) providing a mouse infected with MNV-1;
  - b) administering said agent to the mouse of a);
  - c) monitoring the outcome of the MNV-1 infection.